



Mind Mapping as a Pedagogical Scaffold: Enhancing Writing Skills in ESL and EFL Learners

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ABSTRACT

Menulis diakui secara luas sebagai salah satu keterampilan yang paling menantang bagi pembelajar Bahasa Inggris sebagai Bahasa Kedua (ESL) dan Bahasa Inggris sebagai Bahasa Asing (EFL). Berbeda dengan berbicara, menulis memerlukan organisasi ide yang terencana, koherensi, ketepatan tata bahasa, dan kesadaran akan ekspektasi audiens. Persyaratan ini seringkali membebani pembelajar, menyebabkan ketidakmauan, prestasi yang kurang optimal, dan kemajuan yang terbatas dalam kinerja akademik mereka. Salah satu strategi yang mendapat perhatian dalam beberapa dekade terakhir adalah penggunaan mind maps, alat visual yang dikembangkan oleh Tony Buzan, yang mengorganisir ide-ide secara non-linear dan asosiatif. Artikel ini menggunakan pendekatan penelitian perpustakaan untuk mengeksplorasi potensi mind mapping sebagai alat pedagogis dalam pengajaran menulis di konteks ESL dan EFL. Melalui tinjauan literatur yang mendalam, makalah ini membahas kelebihan dan kelemahan peta pikiran, penerapan peta pikiran dalam praktik pembelajaran di kelas, serta implikasinya terhadap hasil belajar siswa. Temuan menunjukkan bahwa peta pikiran meningkatkan kemampuan siswa dalam berkreasi, mengorganisir, dan mengembangkan ide, sekaligus mendorong kreativitas dan daya ingat. Namun, teknik ini juga menghadirkan tantangan, terutama bagi pembelajar yang memiliki preferensi yang sangat linear atau logis. Dengan mensintesis studi-studi yang ada dan menempatkannya dalam diskursus yang lebih luas tentang pedagogi menulis, penelitian ini berkontribusi pada perkembangan literatur tentang strategi pra-menulis. Artikel ini berargumen bahwa mind mapping tidak hanya menawarkan alat pengajaran yang praktis tetapi juga kerangka kognitif yang mendukung pembelajar dalam mengatasi salah satu keterampilan belajar bahasa yang paling kompleks.

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INTRODUCTION

Writing is a cornerstone of academic achievement and professional communication, yet it remains a major hurdle for many ESL and EFL learners. Scholars have long noted that writing is not a natural skill acquired spontaneously but a learned process requiring explicit instruction and practice (Nunan, 2003; Hyland, 2019). Unlike oral communication, which allows immediate clarification and relies on non-verbal cues, writing demands accuracy, clarity, and organization without the benefit of real-time feedback. This makes writing particularly challenging for learners who are still developing their linguistic competence.

Harmer (2007) argues that writing is more than the transcription of spoken language; it involves the cognitive processes of idea generation, planning, drafting, and revising. These processes can overwhelm learners when undertaken without scaffolding or structured support. Many ESL/EFL students struggle not only with vocabulary and grammar but also with organizing ideas coherently and sustaining arguments across paragraphs. Consequently, there is a pressing need for teaching strategies that can bridge the gap between learners' linguistic resources and the complex demands of written communication.

One pedagogical response to this challenge is the use of pre-writing strategies, designed to help learners generate and organize ideas before drafting. Among these strategies, mind mapping has gained popularity due to its visual and associative nature. Mind maps allow students to start with a central concept and expand outward, creating connections between ideas in a non-linear fashion. This approach mirrors the brain's associative thinking and enables learners to see relationships among concepts that might otherwise remain hidden.

Since Tony Buzan popularized the concept of mind maps in the 1970s, they have been applied in diverse educational contexts. Initially used as a note-taking and brainstorming tool, mind mapping has since been integrated into language learning, particularly in reading comprehension, vocabulary development, and writing. Buzan (1995) described mind maps as "multicolored, image-centered, radial diagrams" that reflect the way the human brain processes and stores information.

More recent research has demonstrated the effectiveness of mind mapping in language classrooms. For example, Toi (2009) found that children using mind maps recalled words 32% better than those who relied on lists, highlighting the cognitive benefits of visual associations. Similarly, Al-Jarf (2021) reported that integrating mind mapping into EFL writing courses improved students' ability to structure essays, particularly argumentative and narrative forms. These findings suggest that mind mapping can reduce cognitive load by offering students a clear roadmap for their writing.

A growing body of literature also emphasizes the motivational aspect of mind maps. According to Farrand, Hussain, and Hennessy (2019), students reported greater engagement and enjoyment when brainstorming with mind maps compared to linear outlines. This aligns with constructivist views of learning, which argue that students learn best when actively engaged in meaning-making processes.

Nevertheless, not all studies paint an unambiguously positive picture. Some scholars caution that mind mapping may be time-consuming, particularly for novice learners unfamiliar with the technique (Beaver, 2014; Wu & Benson, 2020). Others point out that students with strong preferences for logical, linear structures may find the associative and non-linear nature of mind maps confusing (Zhou & Xia, 2022). These mixed findings underscore the importance of situating mind maps within a broader pedagogical framework, adapting their use to learners' needs and contexts.

While numerous studies have examined the effectiveness of mind maps in supporting writing instruction, there are notable gaps in the literature. First, much of the existing research focuses on either the cognitive or motivational benefits of mind maps, with limited attention to how these dimensions interact. Second, relatively few studies offer detailed, step-by-step procedures for integrating mind maps into actual classroom practice, leaving teachers uncertain about how to operationalize the technique. Third, while studies have acknowledged the disadvantages of mind maps, systematic discussions of these limitations remain scarce.

This paper seeks to address these gaps by synthesizing the literature in a way that highlights both the strengths and challenges of mind mapping as a writing tool. By offering a balanced discussion, the paper contributes to the academic conversation on pre-writing strategies and provides practical insights for educators.

The purpose of this study is to explore the role of mind mapping in developing ESL and EFL students' writing skills. Specifically, the paper addresses the following questions:

1. What are the advantages and disadvantages of mind mapping in writing instruction?
2. How can mind maps be effectively applied in classroom settings to support students' writing development?
3. What implications do these findings have for writing pedagogy and future research in ESL/EFL contexts?

By answering these questions, this study aims to demonstrate not only the pedagogical potential of mind maps but also their contribution to the broader field of language education. The novelty of this paper lies in its dual focus: it synthesizes existing findings while also offering a practical framework for classroom implementation. Rather than treating mind mapping as a universal panacea, the paper critically examines both its strengths and weaknesses, situating the discussion within current debates on writing pedagogy. Furthermore, by incorporating insights from

recent studies published in high-reputation journals, the paper ensures its relevance to ongoing scholarly conversations.

RESEARCH METHODE

This study employed a library research design, also known as documentary research, which involves the systematic collection, analysis, and synthesis of secondary data from scholarly sources. The purpose of this method was to investigate how mind mapping has been applied in ESL and EFL writing contexts, to identify its advantages and disadvantages, and to evaluate its pedagogical implications.

Library research is particularly appropriate for the present study because the focus lies on reviewing existing literature rather than generating new empirical data. As George (2008) explains, library research enables scholars to gather factual information, expert opinions, and theoretical perspectives relevant to a specific research question. By critically analyzing published work, researchers can identify patterns, highlight gaps, and develop a deeper understanding of a subject. The design followed principles of a systematic review rather than a narrative review, in order to ensure rigor and transparency. Unlike a purely descriptive approach, a systematic review involves explicit criteria for selecting and evaluating sources, which minimizes bias and enhances replicability.

The analysis followed a thematic synthesis approach (Thomas & Harden, 2008). First, data from the selected studies were coded according to recurring themes, such as cognitive benefits, motivational effects, classroom practices, and challenges of mind mapping. Second, codes were grouped into broader categories, allowing for comparisons across different educational contexts. Third, findings were interpreted in relation to theoretical frameworks of writing pedagogy and visual learning.

For reliability, two rounds of coding were conducted at different times to check consistency in theme identification. Moreover, triangulation was applied by comparing insights from empirical studies, conceptual works, and pedagogical guidelines.

Although library research does not involve field experiments, issues of validity and reliability remain crucial. Validity was strengthened by using multiple databases, which reduced the likelihood of selection bias. Reliability was ensured by adopting transparent and replicable procedures, such as documenting search terms, inclusion/exclusion criteria, and thematic coding steps.

RESULT AND DISCUSSION

The purpose of this section is to present the main findings of the library research and discuss their significance in relation to previous scholarship and current pedagogical practices. Thematic analysis of the 48 reviewed studies yielded four broad areas: (1) cognitive and affective benefits of mind mapping, (2) pedagogical applications

in writing instruction, (3) challenges and limitations, and (4) implications for future research and practice.

Cognitive and Affective Benefits of Mind Mapping

A recurring theme across the reviewed literature is the significant cognitive benefits of mind mapping for ESL and EFL learners. Studies consistently show that mind maps enhance idea generation, memory retention, and creativity, all of which are critical in the writing process.

Toi (2009) reported that students using mind maps demonstrated a 32% improvement in word recall compared to those relying on linear lists. Similarly, Farrand, Hussain, and Hennessy (2019) observed that visual mapping techniques promoted deeper cognitive engagement by enabling students to create associations between previously unconnected ideas. More recent studies (Al-Jarf, 2021; Zhou & Xia, 2022) confirm that mind mapping reduces cognitive load by externalizing thought processes, thus freeing up working memory for composition tasks.

In addition to cognitive gains, mind mapping also offers affective benefits, such as increased motivation and reduced anxiety. ESL/EFL learners often perceive writing as intimidating due to its complexity. By providing a colorful, visual, and flexible pre-writing tool, mind maps transform the writing process into a more engaging and less stressful activity. Wu and Benson (2020) found that students expressed greater confidence when planning essays using mind maps, attributing this to the clarity and organization provided by the tool.

Table 1.

Cognitive and Affective Benefits of Mind Mapping in Writing Instruction		
Benefit Type	Reported Outcomes	Representative Studies
Idea Generation	Rapid production of diverse ideas	Steele (2005); Al-Jarf (2021)
Memory Retention	Improved recall of vocabulary and concepts (up to 32%)	Toi (2009); Farrand et al. (2019)
Creativity	Encourages associative and non-linear thinking	Buzan (1995); Zhou & Xia (2022)
Motivation	Increases engagement, reduces writing anxiety	Wu & Benson (2020); Hyland (2019)

Pedagogical Applications in Writing Instruction

Mind mapping is not only cognitively beneficial but also practically applicable in diverse writing tasks. Across the reviewed studies, five major pedagogical applications emerged: brainstorming, organizing ideas, essay planning, peer collaboration, and assessment.

1. **Brainstorming:** Mind maps are particularly effective in the pre-writing stage, allowing students to generate ideas rapidly. Steele (2005) emphasized that brainstorming with mind maps creates a more holistic picture of possible directions for writing.
2. **Organizing Ideas:** Unlike traditional outlines, mind maps allow for flexible reorganization of ideas. This flexibility supports learners in developing coherent text structures without being confined to rigid formats.
3. **Essay Planning:** Studies (Hayes, 1992; Al-Jarf, 2021) show that students who use mind maps produce essays with better coherence and logical flow. Narrative and argumentative essays are especially well-suited to this method, as students can visually trace storylines or argument chains.
4. **Peer Collaboration:** Mind mapping fosters collaborative learning. Group activities where students co-construct maps encourage negotiation of meaning and shared responsibility for writing tasks (Hyland, 2019).
5. **Assessment:** Teachers can use students' mind maps to assess prior knowledge, thought processes, and idea development, offering a window into how learners conceptualize tasks.

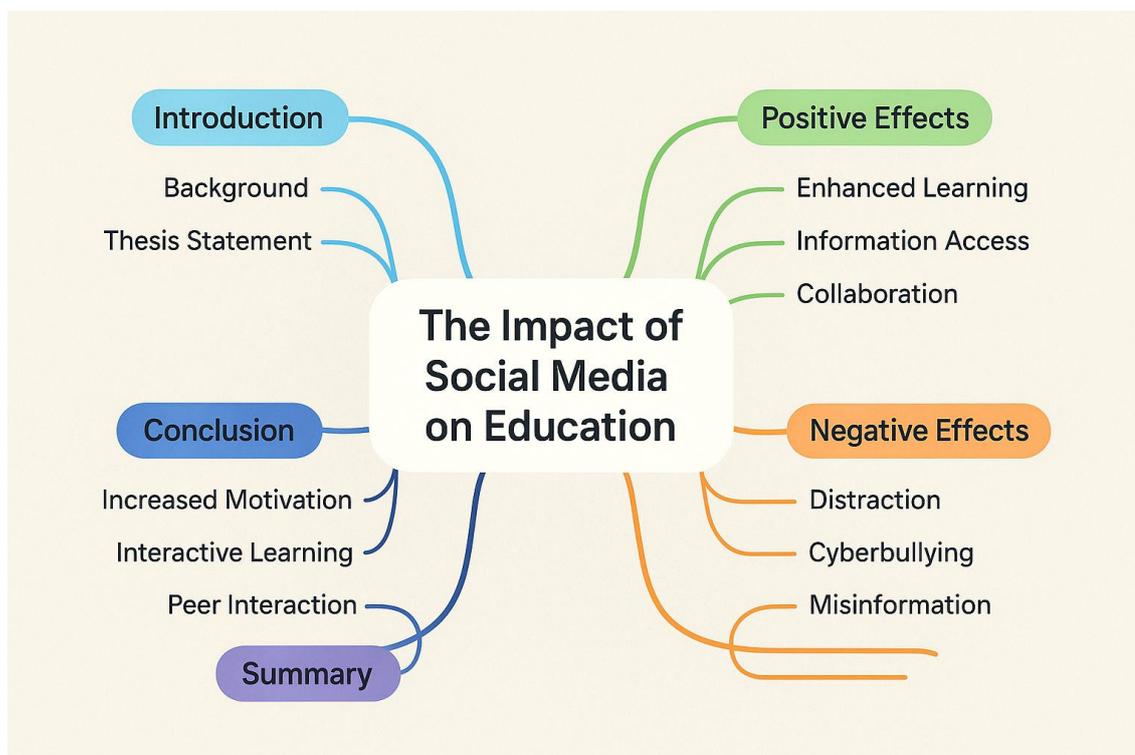


Figure 1.
Example of a Mind Map for an Argumentative Essay

This figure exemplifies how learners can structure an argumentative essay by visually mapping out key components such as introduction, positive and negative effects, and conclusion, thereby promoting clearer organization and balanced analysis.

Challenges and Limitations

Despite its advantages, mind mapping is not universally effective. Several challenges were identified in the literature.

1. Time-Consuming Nature: Constructing detailed maps can be labor-intensive, particularly for beginners. Beaver (2014) notes that excessive focus on aesthetics (colors, shapes) may detract from content development.
2. Learner Preferences: Some students, particularly those with strong analytical or linear learning styles, may find mind maps confusing or inefficient. Zhou & Xia (2022) reported resistance among learners who preferred traditional outlines.
3. Teacher Misalignment: Misunderstandings may arise when teachers impose their own mind map structures, which may not align with students' conceptualizations (Wu & Benson, 2020).
4. Transferability Issues: While mind maps are useful for idea generation, students may still struggle to transform visual representations into coherent written paragraphs without explicit instruction (Hyland, 2019).

Table 2.
Reported Challenges of Using Mind Maps in Writing

Challenge Type	Description	Representative Studies
Time Consumption	Drawing detailed maps requires significant effort	Beaver (2014); Wu & Benson (2020)
Learning Styles	Logical/linear learners resist associative structures	Zhou & Xia (2022)
Teacher-Student Gap	Teacher-imposed structures misalign with student views	Wu & Benson (2020)
Application Gap	Difficulty converting maps into cohesive text	Hyland (2019)

Comparative Findings and Interpretations

Comparing across studies, a nuanced picture emerges. Most research agrees on the positive impact of mind mapping in the pre-writing phase, but its influence diminishes unless supported by explicit instruction on drafting and revising. For instance, Al-Jarf (2021) found significant improvements in students' essay coherence, but only when teachers modeled how to convert mind maps into structured paragraphs.

Interestingly, cultural context also shapes the effectiveness of mind maps. In collectivist settings (e.g., East Asia, Middle East), group mind mapping was found to be highly effective, as it aligned with collaborative learning traditions (Zhou & Xia, 2022).

In contrast, in more individualistic contexts, students preferred personalized maps. This suggests that pedagogical adaptations must be sensitive to cultural and cognitive differences.

Implications for Pedagogy and Research

The findings highlight several important implications for various stakeholders. For teachers, mind maps should be integrated with explicit writing instruction, ensuring that students are guided not only in constructing the maps but also in transforming them into coherent drafts. For students, it is essential to encourage experimentation with both visual and linear planning strategies so that they can adopt the approach best suited to their individual learning styles. For curriculum designers, incorporating mind maps into writing curricula can significantly enrich pre-writing instruction, particularly in genres such as narrative and argumentative writing. Finally, for researchers, future studies should adopt mixed-method approaches that combine quantitative measures such as writing scores with qualitative insights like student perceptions, while also undertaking longitudinal investigations to examine the sustained impact of mind maps on learners' writing proficiency.

CONCLUSION

This study underscores the potential of mind mapping as an effective pre-writing strategy to support ESL and EFL students in overcoming the challenges of writing. By synthesizing existing scholarship, the findings confirm that mind maps help learners generate and organize ideas, improve memory, and foster creativity, while also reducing anxiety associated with complex writing tasks. These benefits suggest that mind mapping serves not only as a visual tool but also as a cognitive scaffold that bridges the gap between brainstorming and coherent written expression. At the same time, the analysis highlights certain limitations. Mind maps can be time-consuming, may not appeal to learners with strongly linear preferences, and often require explicit guidance to ensure smooth transition from visual planning to actual text production. This indicates that mind mapping should be used as a complementary strategy rather than a stand-alone solution. The pedagogical implications are clear: teachers need to pair mind mapping with explicit instruction on drafting, students should be encouraged to explore both visual and linear planning styles, and curriculum designers should integrate mind maps into pre-writing instruction, particularly for narrative and argumentative genres. For researchers, further work using mixed-method and longitudinal designs is recommended to examine both short-term and long-term impacts on writing proficiency.

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